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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,662	08/01/2003	Bevan Staple	19930-003110	3560
20350	7590	07/23/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			CONNELLY CUSHWA, MICHELLE R	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/632,662

**Applicant(s)**

STAPLE ET AL.

**Examiner**

Michelle R. Connelly-Cushwa

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-16 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's Response filed June 16, 2004 has been fully considered and entered.

#### ***Terminal Disclaimer***

The terminal disclaimer filed on June 16, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,625,342 B2 has been reviewed and is NOT accepted.

The person who signed the terminal disclaimer is not recognized as an officer of the assignee, and he/she has not been established as being authorized to act on behalf of the assignee. See MPEP § 324.

An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

It would be acceptable for a person, other than a recognized officer, to sign a terminal disclaimer, provided the record for the application includes a statement that the person is empowered to sign terminal disclaimers and/or act on behalf of the organization.

Accordingly, a new terminal disclaimer which includes the above empowerment statement will be considered to be signed by an appropriate official of the assignee. A separately filed paper referencing the previously filed terminal disclaimer and containing a proper empowerment statement would also be acceptable.

#### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

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F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 1, 2, 4 and 8-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8, 10, 16, 17, 21-24 and 27 of U.S. Patent No. 6,625,342 B2.** Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-8, 10, 16, 17, 21-24 and 27 of U.S. Patent No. 6,625,342 B2 disclose all of the limitations of claims 1, 2, 4 and 8-15 of the present application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-3, 9, 11, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasiri et al. (US 6,533,947 B2).**

Regarding claims 1, 9, 11, 13; Figure 3 of Nasiri et al. discloses a method and apparatus for manipulating a first plate in a MEMS device relative to a second plate in a MEMS device, comprising:

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- providing a first actuator (109, 108') and a second actuator (108, 109') disposed in a base layer (110);
- providing a first structural plate (101) supported by a first pivot (320), wherein the first structural plate (101) is disposed above the first actuator (109, 108') and the first pivot (320) is disposed above the base layer (110) between the first and second actuators; and
- providing a second structural plate (103, 103') supported by a second pivot (106, 106'), wherein the second structural plate (103, 103') is disposed above the second actuator (108, 109') and the second pivot (106, 106') is disposed above the base layer (110);
- wherein activating the second actuator (108, 109') will inherently cause the second plate (103, 103') to impact the first plate (101) when the force applied to the second plate is large enough (see Figure 3);
- wherein the actuators create an electric field force when activated and the deflecting of the second structural plate is caused, at least in part, by the electric field force.

Nasiri et al., however, does not teach that the first and second actuators are disposed above the base layer. One of ordinary skill in the art would have recognized that the first and second actuators (109, 108' and 108, 109'), which are formed of electrodes, could alternatively be formed above/on the surface of the base layer (110) in the invention of Nasiri et al., since electrodes are commonly formed in the art by coating a metallic material on the surface of substrates. Thus, one of ordinary skill in the art

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would have found it obvious to form the electrodes (109, 108' and 108, 109'), which form the first and second actuators, above/on the surface of the base layer (110) in the invention of Nasiri et al., since this is a known alternative method in the art for forming electrodes on substrates.

Regarding claims 2 and 15; when the second actuators are initially actuated with sufficient force to cause an impact, the impact will be a first impact, and the method may further comprise deactivating the second actuator, which causes the second plate to move away from the first plate, and reactivating the second actuator with sufficient force to cause a second impact, since the actuators may be activated and deactivated with the desired force as many times as desired by the user in the invention of Nasiri et al.

Regarding claim 3; activating the first actuator (109, 108') creates an actuator force on the first plate (101), wherein the actuator force on the first plate encourages the first plate to deflect toward the second plate (103, see Figure 3).

***Allowable Subject Matter***

Claims 4, 8, 10, 12 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if the double patenting rejections set forth above were overcome and the claims were rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-7 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art cited on attached form PTO-892 is the most relevant prior art

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known, however, the invention of claims 4-8, 10, 12 and 14 are allowable over the prior art of record for the following reasons.

Regarding claim 4; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 4, wherein the first plate comprises a mirror and wherein the second plate comprises a mirror in combination with the limitations of claim 1, from which claim 4 depends.

Regarding claims 5-7; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious an apparatus as defined in claim 5, wherein the second structural plate is movable to generate a physical force, and wherein the physical force encourages the first structural plate to move toward the static position in combination with the other limitations of claim 5. Claims 6 and 7 depend from claim 5.

Regarding claim 8; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a MEMS device as defined in claim 8, wherein energizing the first and second actuators causes the first plate to deflect away from the second plate and the second plate to deflect away from the first plate in combination with the other limitations of claim 8.

Regarding claim 10; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 10, wherein the deflecting the second structural plate is caused, at least in part, by a restorative force between the second structural plate and



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the second pivot in combination with the limitations of claim 9, from which claim 10 depends.

Regarding claim 12; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 12, wherein the deflecting the second structural plate is caused, at least in part, by a restorative force between the second structural plate and the second pivot in combination with the other limitations of claim 12 and the limitations of claim 9, from which claim 12 depends.

Regarding claim 14; ; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 14, wherein a stiction force exists at a point of contact between the first structural plate and the base layer, and wherein a combination of a restorative force between the first structural plate and the first pivot and the disturbance in the molecule build-up or adhesion force is sufficient to overcome the stiction force in combination with the limitations of claim 9, from which claim 14 depends.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claim 4-8, 10, 12, 14.

### ***Response to Arguments***

Applicant's arguments filed June 16, 2004 have been fully considered but they are not persuasive.



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Regarding prior art rejections to claims 1-3, 9, 11, 13 and 15 under 35 U.S.C. 103(a) over Nasiri et al. (US 6,533,947 B2); Applicant states that the office action has not shown that the prior art teaches or suggest all of the claim limitations, and that the office action does not cite a reference that teaches or suggests a motivation to combine the reference teachings.

Specifically, Nasiri does not teach that the first and second actuators are disposed above the base layer. The rejection over Nasiri et al. states:

“One of ordinary skill in the art would have recognized that the first and second actuators (109, 108' and 108, 109'), which are formed of electrodes, could alternatively be formed above/on the surface of the base layer (110) in the invention of Nasiri et al., since electrodes are commonly formed in the art by coating a metallic material on the surface of substrates. Thus, one of ordinary skill in the art would have found it obvious to form the electrodes (109, 108' and 108, 109'), which form the first and second actuators, above/on the surface of the base layer (110) in the invention of Nasiri et al., since this is a known alternative method in the art for forming electrodes on substrates.”

Applicant further notes that the examiner may take official notice of facts outside the record which are capable of instant and unquestionable demonstration as being well-known in the art and that if the applicant traverses such an assertion the examiner should cite a reference in support of his or her position. In response, the following references are presently cited to show that forming first and second actuators, which

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are formed of electrodes, above a substrate or base layer in MEMS devices is a common practice in the art and a well known alternative. Knipe (US 6,552,840 B2) discloses a MEMS device in which address electrodes (308) are formed above substrate/base layer (310); Nelson (US 5,212,582) discloses a MEMS device in which electrodes (36, 34) are formed above a base layer; Michalicek et al. (US 6,028,689) discloses a MEMS device in which electrodes (22, 24) are formed above a substrate/base layer (20); and Swart et al. (US 6,025,951) discloses a MEMS device in which electrodes (48, 40) are formed above a substrate/base layer (46).

Further, Applicant notes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In response, please see the abstract, column 2, lines 64-66, and column 3, lines column 3, lines 11-14, of Knipe (US 6,552,840 B2), which describes a general motivation for placing electrodes on a substrate/base layer. In general, it is a well known concept that decreasing the gap between an electrode and a member attracted to the electrode by electrostatic forces will improve electrostatic efficiency. Therefore, one of ordinary skill in the art would have recognized that forming electrodes on a substrate/base layer in an electrostatically actuated MEMS device, as opposed to within the substrate/base layer, would narrow the gap between the electrodes and the member attracted to the electrodes, thereby increasing electrostatic efficiency by forming the

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electrodes on the substrate/base layer in the MEMS device, which is a known alternative in the art. Therefore, both the alternate method/practice of forming electrodes on the base layer in MEMS devices and motivation for doing so are generally available to one of ordinary skill in the art.

### ***Conclusion***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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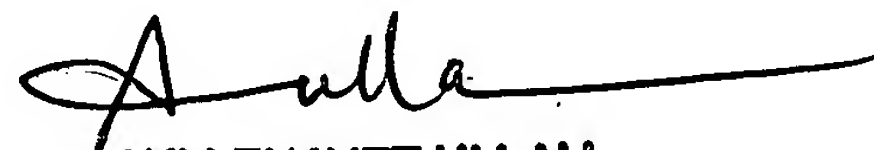
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.

  
Michelle R. Connelly-Cushwa  
Patent Examiner  
July 16, 2004

  
AKM ENAYET ULLAH  
PRIMARY EXAMINER